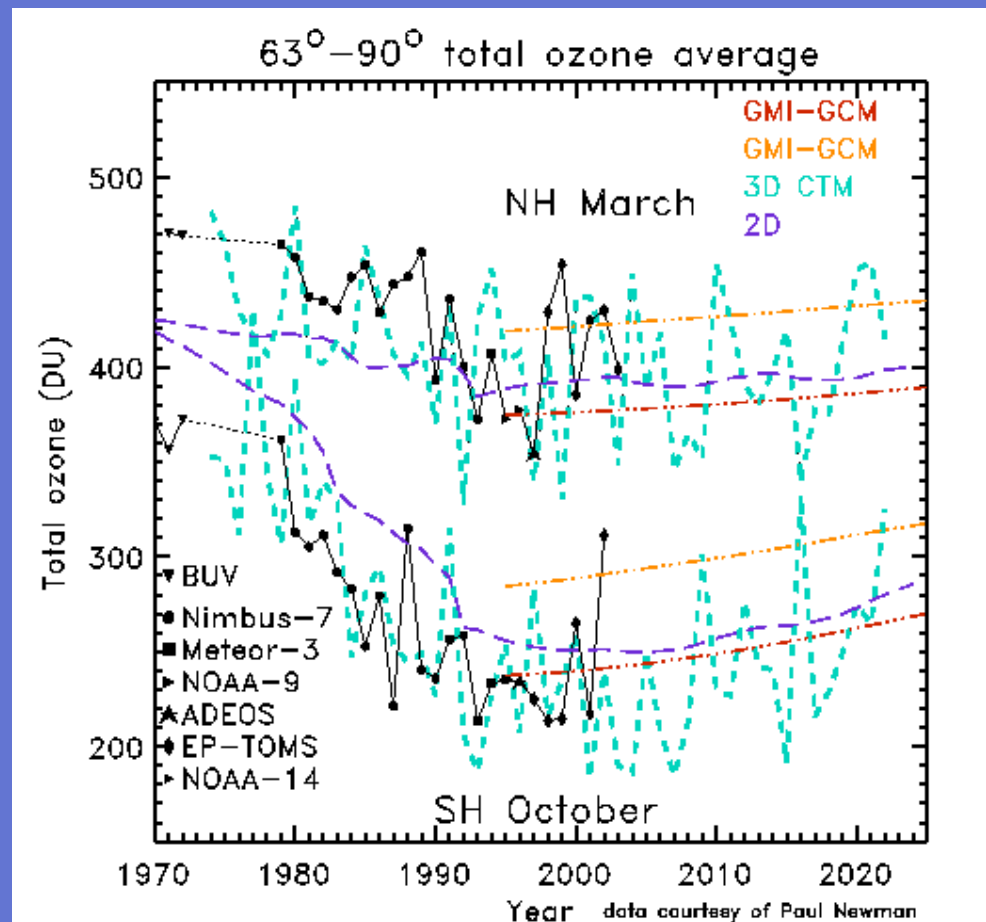
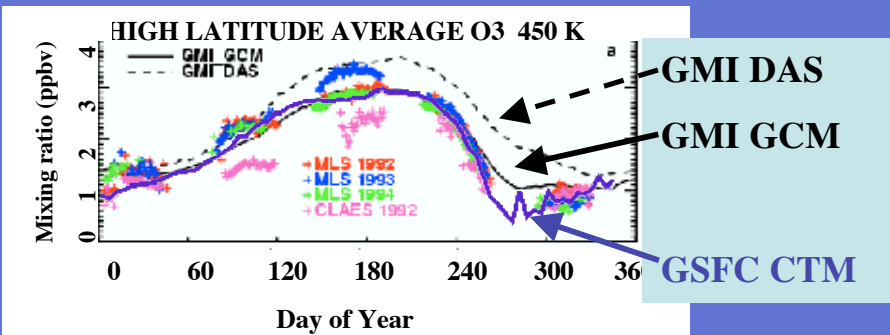


Impact of horizontal resolution on simulation of winter polar ozone loss

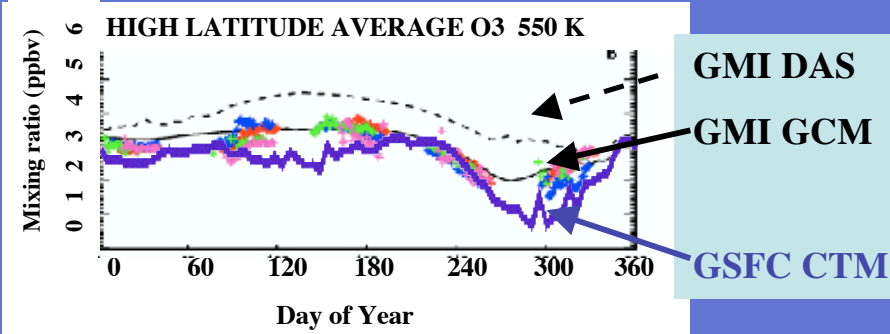
Anne Douglass

Compare GSFC 2D and 3D simulations with column data 1970 - 2002; compare the four simulations with each other 1995-onward

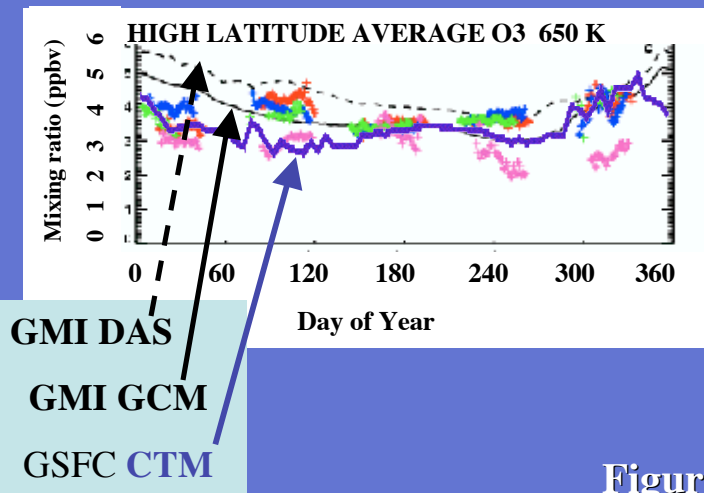




O₃ falls off most like MLS observations in GSFC CTM (higher ClO and Cly).



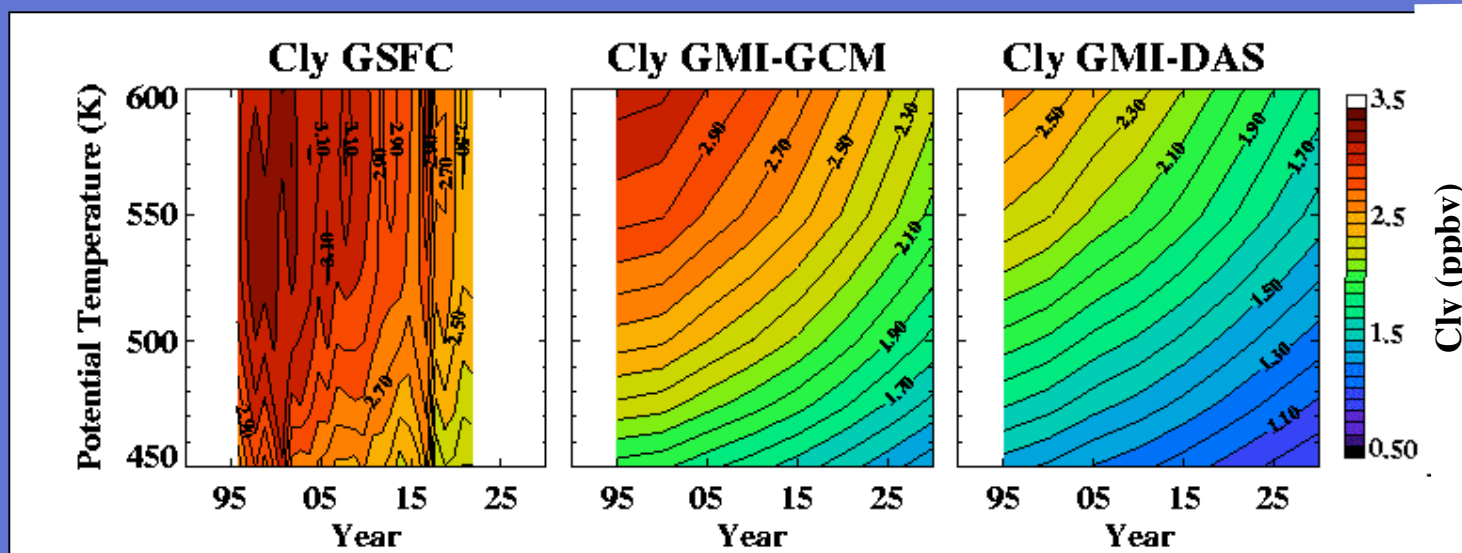
The GSFC CTM minimum ozone is smaller than the GMI-GCM minimum.



The GSFC-CTM O₃ seasonal cycle is most similar to observations. GMI-DAS O₃ is higher than observed most of the year.

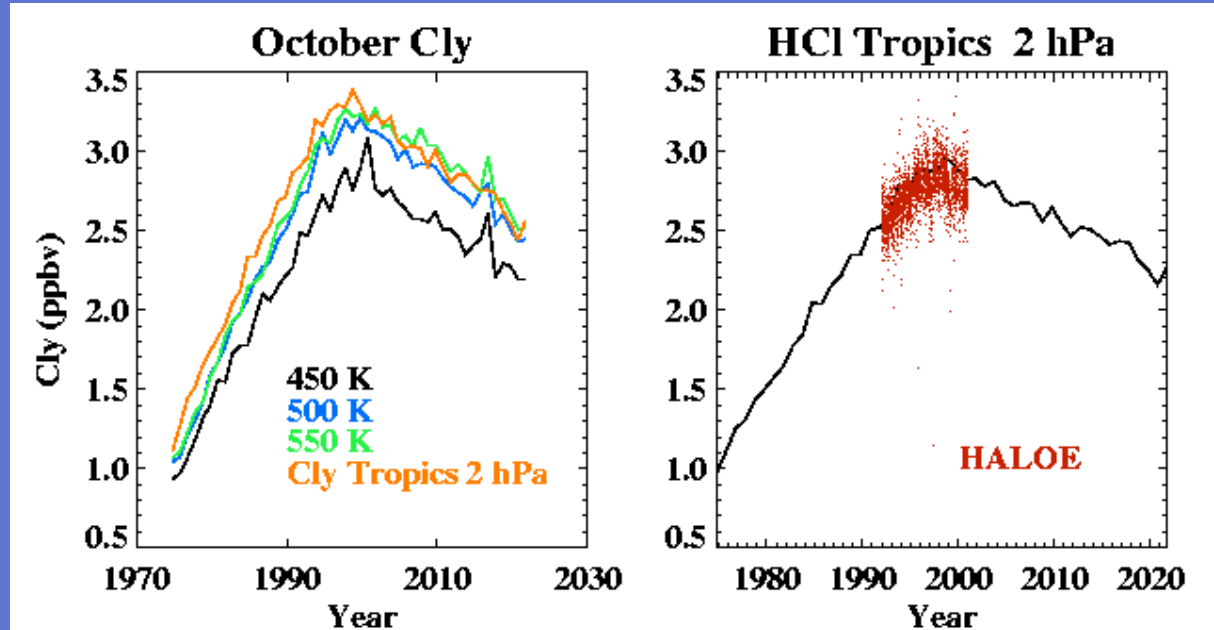
Figure from Considine et al., JGR, 2004

October Lower Stratospheric Cl_y 82S



GSFC CTM Cl_y at 500K stays above 2.5 ppbv past 2020.

Other tests of long lived tracers show that this is due to horizontal resolution (2 x 2.5 GSFC CTM, 4 x 5 GMI).



Lower stratospheric Cl_y at 500K and 550K closely follows tropical Cl_y at 2 hPa.

Cl_y at 450K has the same shape but is a few tenths of a ppbv smaller.

CTM HCl in the tropics closely follows HALOE HCl (mixing ratio boundary conditions practically guarantee this.)

ACE on SciSat and MLS on AURA will continue the HCl record.